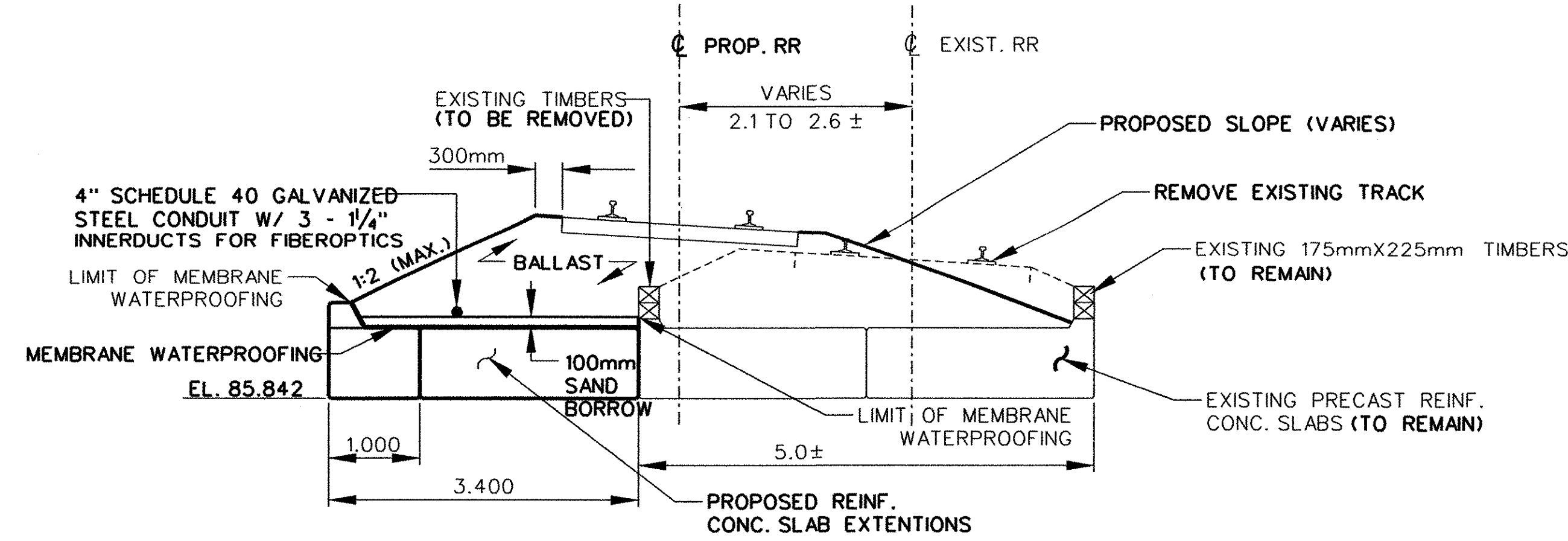
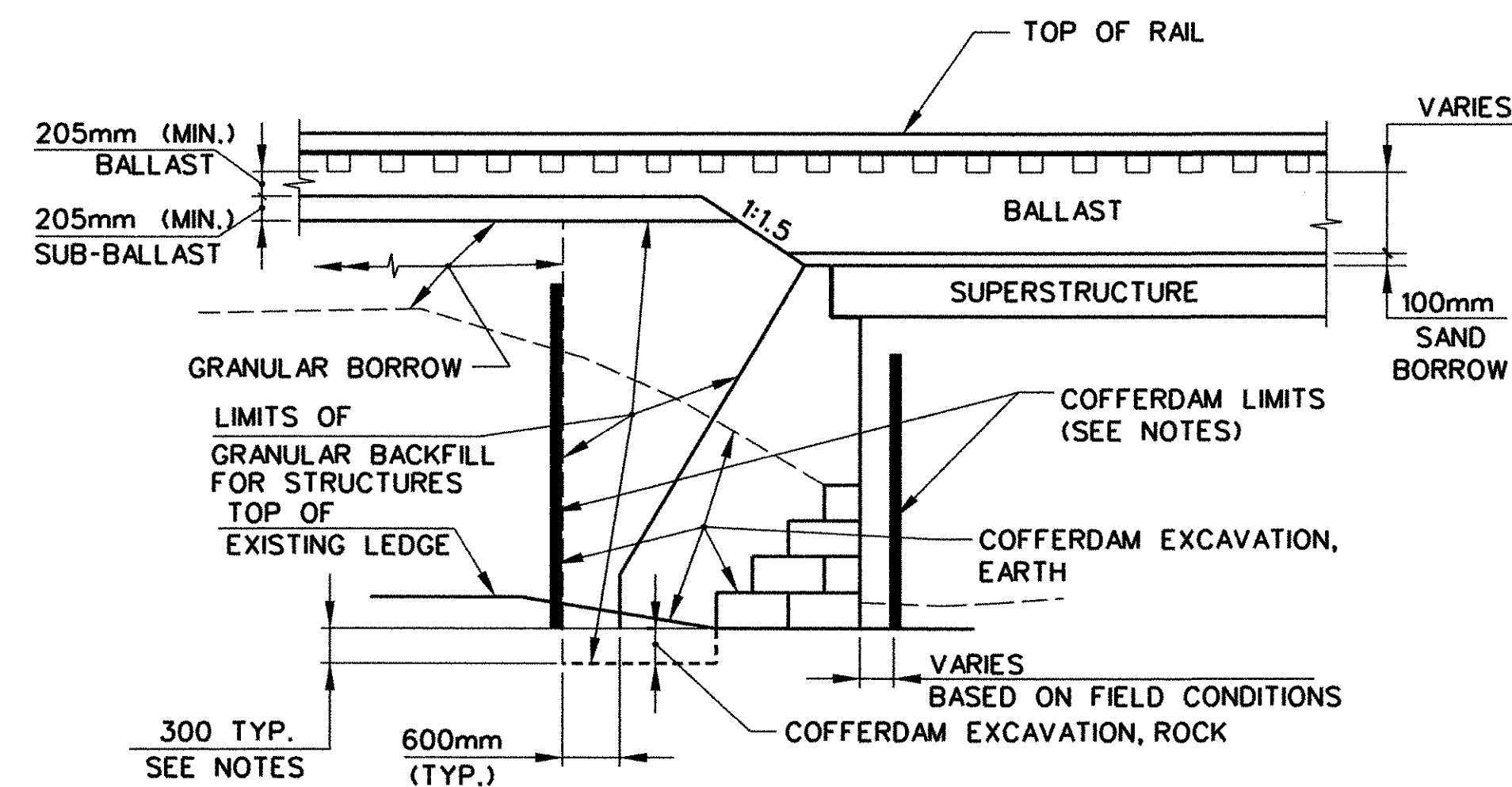


HYDRAULICS REPORT



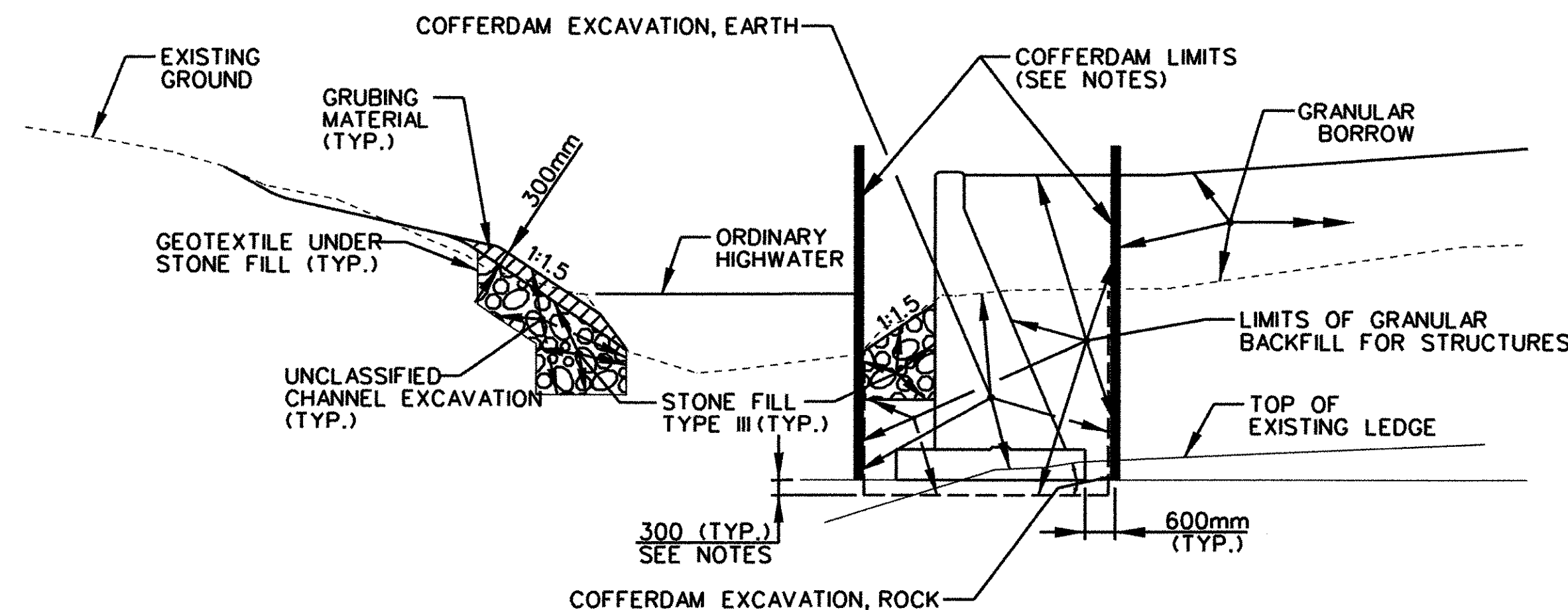
TYPICAL BRIDGE SECTION  
SARGENT BROOK

SCALE 1:50



TYPICAL ABUTMENT SECTION

(NOT TO SCALE)



TYPICAL WINGWALL/CHANNEL SECTION

(NOT TO SCALE)

NOTES

1. COFFERDAM LIMITS TO BE DETERMINED BY THE CONTRACTOR.
2. THE PAY LIMITS OF "COFFERDAM EXCAVATION, EARTH" AND "COFFERDAM EXCAVATION, ROCK" SHALL BE 600 OUTSIDE THE PERIMETER OF THE FOOTING, UP TO EXISTING GROUND OR BOTTOM OF SUBBASE, WHICHEVER IS LOWER.
3. 300 UNDERCUT AS DETERMINED NECESSARY BY THE RESIDENT ENGINEER.
4. IF A COFFERDAM IS CONSTRUCTED WHICH IS LARGER THAN THE INDICATED COFFERDAM EXCAVATION PAY LIMITS, PAYMENT FOR ALL UNCLASSIFIED CHANNEL EXCAVATION, INCLUDING THE PORTION WHICH IS INSIDE THE COFFERDAM BUT OUTSIDE THE COFFERDAM EXCAVATION PAY LIMITS, WILL BE MADE AT THE CONTRACT UNIT PRICE FOR UNCLASSIFIED CHANNEL EXCAVATION.

Plot Date: 10-03-2002  
File: sgtbr302

HYDRAULIC DATA

1. DRAINAGE AREA 14.2 km<sup>2</sup>
2. CHARACTER OF TERRAIN SMALL MOUNTAINS
3. CHARACTER AND TYPE OF STREAM ALLUVIAL RANDOM VARIATION IN WIDTH
4. NATURE OF STREAMBED SAND/GRAVEL BOTTOM
 

Q2.33	6 m <sup>3</sup> /s	050	30.5 m <sup>3</sup> /s
Q10	18 m <sup>3</sup> /s	0100	35.5 m <sup>3</sup> /s
Q25	25.5 m <sup>3</sup> /s	0500	48 m <sup>3</sup> /s
5. DATE OF FLOOD OF RECORD UNKNOWN
6. WATER SURFACE ELEVATION NA ESTIMATED DISCHARGE NA m<sup>3</sup>/s
7. NATURAL STREAM VELOCITY @ Q 50 2.33 - 1.70 m/s
8. ICE CONDITIONS LIGHT DEBRIS MODERATE TO HEAVY
9. DOES THE STREAM REACH MAX. HIGHWATER ELEVATION RAPIDLY? YES, STREAM IS CONSIDERED FLASHY
10. IS ORDINARY RISE RAPID? YES
11. IS STAGE AFFECTED BY UPSTREAM/DOWNSTREAM CONDITIONS? YES  
IF YES, DESCRIBE: AT GREATER THAN Q2.33 THE WATER OVER FLOWS STREAM BANKS AND TRAVELS ACROSS WETLANDS TO ADJACENT ROUTE 9
12. WATERSHED STORAGE < 1/2 HEADWATERS UNIFORM THROUGHOUT WATERSHED IMMEDIATELY ABOVE SITE

EXISTING STRUCTURE

1. STRUCTURE TYPE: REINFORCED CONCRETE CAPPED STONE ABUTMENT w/ CONCRETE DECK YEAR BUILT: UNKNOWN
2. CLEAR SPAN (NORMAL TO STREAM): 5.6 m
3. VERTICAL CLEARANCE ABOVE STREAMBED: 3.14 m
4. WATERWAY OF FULL OPENING: 18.0 m<sup>2</sup>
5. DISPOSITION OF STRUCTURE: EXTEND CONCRETE CAP OVER SLOPED STONE ABUTMENT WALLS
6. TYPE OF MATERIAL UNDER SUBSTRUCTURE: BEDROCK (HARDPAN)
7. WATER SURFACE ELEVATION @ Q2.33- 83.77 m VELOCITY- 1.70 m/s
 

Q10-	84.77 m	-	2.52 m/s
Q25-	85.29 m	-	3.66 m/s
Q50-	85.49 m	-	3.90 m/s
Q100-	85.68 m	-	4.11 m/s
8. LONG TERM STREAM BED CHANGES: SEDIMENT DEPOSITIS ON DOWNSTREAM CROSS SECTIONS NEAR SHARP CURVE IN STREAM
9. IS THE ROADWAY OVERTOPPED BELOW THE Q100? YES FREQUENCY: Q2.9
10. RELIEF ELEVATION: 84.25 m DISCHARGE OVER ROAD @ Q 100: 27 m<sup>3</sup>/s
11. UPSTREAM STRUCTURE: TOWN: BRATTLEBORO DISTANCE: 0.25km  
HIGHWAY NO.: 5 STRUCTURE NO.: 10  
STRUCTURE TYPE: WIDE-FLANGE BEAMS WITH CONCRETE DECK  
CLEAR SPAN: 9.14 m CLEAR HEIGHT: 1.83 m  
YEAR BUILT: 1959 FULL WATERWAY: 16.73 m<sup>2</sup>
12. DOWNSTREAM STRUCTURE: TOWN: NONE DISTANCE: \_\_\_\_\_  
HIGHWAY NO.: \_\_\_\_\_ STRUCTURE NO.: \_\_\_\_\_  
STRUCTURE TYPE: \_\_\_\_\_  
CLEAR SPAN: \_\_\_\_\_ CLEAR HEIGHT: \_\_\_\_\_  
YEAR BUILT: \_\_\_\_\_ FULL WATERWAY: \_\_\_\_\_

PROPOSED STRUCTURE

1. STRUCTURE GEOMETRY: EXISTING BRIDGE WITH DECK AND ABUTMENT CAP EXTENSION
  1. STRUCTURE TYPE EXISTING BRIDGE WITH DECK AND ABUTMENT CAP EXTENSION
  2. CLEAR SPAN LENGTH(S): 5.6 m
  3. VERTICAL CLEARANCE ABOVE STREAMBED: 3.14 m
  4. ARE PROVISIONS TO BE MADE FOR PUBLIC UTILITIES? NO
- HYDRAULIC DATA:
1. WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM): 18 m<sup>2</sup> NA m<sup>3</sup>/s
  2. WATER SURFACE ELEVATION @ Q 2.33 - 83.77 m VELOCITY- 1.70 m/s
 

Q 10	84.68 m	-	2.68 m/s
Q 25	85.07 m	-	3.66 m/s
Q 50	85.32 m	-	3.90 m/s
Q 100	85.55 m	-	4.11 m/s
  3. IS THE ROADWAY OVERTOPPED BELOW THE Q100? YES FREQUENCY: Q2.9
  4. RELIEF ELEVATION: 84.25m DISCHARGE OVER ROAD @ Q 100: 27 m<sup>3</sup>/s
  5. AVERAGE LOW ELEVATION OF SUPERSTRUCTURE: 85.83 m
  6. VERTICAL CLEARANCE @ Q 50 - 0.73 m
  7. SCOUR: Q 100: CONTRACTION SCOUR - 5.88m, ABUTMENT 1 - 11.57m, ABUTMENT 2 - 0.67
  8. REQUIRED CHANNEL PROTECTION: STONE FILL TYPE III

PERMIT INFORMATION

- AVERAGE DAILY FLOW: NA  
ORDINARY LOW WATER: NA DEPTH: NA  
ORDINARY HIGH WATER: NA DEPTH: NA  
NA - NOT AVAILABLE

TRAFFIC DATA

- FUNCTIONAL CLASSIFICATION MINOR ARTERIAL
- |                       |     |
|-----------------------|-----|
| 2002 ADT              | N/A |
| 2022 ADT              | N/A |
| 2022 ADTT             | N/A |
| 2002 DHV              | N/A |
| 2022 DHV              | N/A |
| D                     | N/A |
| T                     | N/A |
| V                     | N/A |
| 2002-2022 18 KIP ESAL | N/A |
| 2002-2042 18 KIP ESAL | N/A |

TEMPORARY BRIDGE REQUIREMENTS

1. STRUCTURE TYPE NO TEMPORARY STRUCTURE
  2. CLEAR SPAN LENGTH(S) NORMAL TO STREAM: N/A
  3. VERTICAL CLEARANCE ABOVE STREAMBED: N/A
  4. WATERWAY AREA OF FULL OPENING (NORMAL TO STREAM): N/A
- NA - NOT APPLICABLE

NOTE:

- TRAFFIC MAINTENANCE:
1. IS TRAFFIC TO BE MAINTAINED? YES IF YES, ON EXISTING STRUCTURE X OR ON TEMPORARY BRIDGE
  2. TEMPORARY BRIDGE REQUIREMENTS: ONE OR TWO WAY N/A
- TRAFFIC CONTROL SIGNALS REQUIRED  
ARE SIDEWALKS REQUIRED? IF SO, ON WHAT SIDE?  
STRUCTURE TYPE:

DESIGN CRITERIA

1. DESIGN LIVE LOAD AREA 1936 E70 B&M STANDARD PLAN BB "REINFORCED CONCRETE SLAB"
2. DESIGN SPAN 6m
3. ALLOWABLE LOAD FOR SPREAD FOOTINGS ON SOIL N/A ON LEDGE 950kPa
4. ALLOWABLE LOAD FOR PILING N/A TYPE N/A ESTIMATED LENGTH N/A
5. ALLOWABLE STRESS FOR STRUCTURAL STEEL AASHTO M270M GR 345 WEATHERING STEEL TENSION 186 MPa
6. ALLOWABLE STRESS FOR REINFORCING STEEL AASHTO M31M GRADE 400 TENSION 165 MPa COMPRESSION 138 MPa
7. ALLOWABLE STRESS FOR CONCRETE HIGH PERFORMANCE CLASS A f<sub>c</sub> 30 MPa f<sub>c</sub> N/A

LOAD RATING (TONS)(LOAD FACTOR)

RATING					
INVENTORY					
POSTED					
OPERATING					

STATE OF VERMONT  
AGENCY OF TRANSPORTATION

Town Of BRATTLEBORO Bridge No. 62.51  
Highway No. VT. ROUTE 9 Log Sta.  
Surv. Sta.

NEW ENGLAND CENTRAL RAILROAD OVER SARGENT BROOK

PRELIMINARY INFORMATION

Designed By LM Drawn By DHL  
Checked By GJB Date Bridge Design Supervisor  
JHR Date

PROJECT BRATTLEBORO PROJECT NO.  
NH 010-2(2)

I.G.C. Info.  
Bridge Sheet No. Sheet 5 of 145